

**Relationship of Cases Reported by California Physicians
as Potentially Related to Pesticides
Summarized By Symptom Type and Pesticide Type¹
1999**

Data Available to Determine a Relationship² of Exposure to Symptoms

Pesticide Type³	Relationship²				
	Definite	Probable	Possible	Unlikely	Indirect
Eye Symptoms⁴ Only					
Antimicrobials	90	25	6	0	0
Cholinesterase Inhibitors	4	3	1	0	0
Other Pesticides	16	29	17	3	0
Skin Symptoms⁴, With Or Without Eye Involvement					
Antimicrobials	9	20	19	0	0
Cholinesterase Inhibitors	1	5	18	0	1
Other Pesticides	13	24	50	7	2
Systemic Or Respiratory Symptoms⁴ With or Without Eye or Skin Involvement					
Antimicrobials	18	182	17	2	0
Cholinesterase Inhibitors	29	95	129	6	0
Other Pesticides	15	252	114	25	1

Data Not Available to Determine a Relationship²

Pesticide Type³	Relationship²	
	Insufficient	Unavailable
Antimicrobials	11	26
Cholinesterase Inhibitors	8	11
Other Pesticides	14	47

Asymptomatic Cases²

Pesticide Type³	Asymptomatic²
Antimicrobials	8
Cholinesterase Inhibitors	36
Other Pesticides	30

1. **Source:** California Department of Pesticide Regulation, Pesticide Illness Surveillance Program.

2. **Relationship:** Degree of correlation between pesticide exposure and resulting symptomatology.

Definite : High degree of correlation between pattern of exposure and resulting symptomatology. Requires both medical evidence (such as measured cholinesterase inhibition, positive allergy tests, characteristic signs observed by medical professional) and physical evidence of exposure (environmental and/or biological samples, exposure history) to support the conclusions.

Relationship (continued)

- Probable** : Relatively high degree of correlation exists between the pattern of exposure and the resulting symptomatology. Either medical or physical evidence is inconclusive or unavailable.
- Possible** : Some degree of correlation evident. Medical and physical evidence are inconclusive or unavailable.
- Unlikely** : A correlation cannot be ruled out absolutely. Medical and/or physical evidence suggests a cause other than pesticide exposure.
- Indirect** : Pesticide exposure is not responsible, but pesticide regulations or product label contributed in some way, (e.g. heat stress while wearing chemical resistant clothing).
- Insufficient** : The available information is inadequate to make an informed judgement on the relationship between pesticide exposure and the reported symptomatology. For submitted investigations, the investigator failed to make an adequate attempt to obtain the necessary information.
- Unavailable** : The available information is inadequate to make an informed judgement on the relationship between pesticide exposure and the reported symptomatology. For submitted investigations, the investigator made an adequate attempt to collect the necessary information, but was not able to do so (e.g., none of the parties concerned could be contacted). There usually needs to be more effort than to say the employee is not available for interview; other parties can often supply useful information.
- Asymptomatic** : Exposure occurred, but did not result in illness/injury. Cholinesterase depression without symptoms falls in this category.

3. Pesticide Type: Type of pesticide based on functional class.

Antimicrobials : Pesticides used to kill or inactivate disease-producing microorganisms (bacteria, viruses, etc.).

Cholinesterase : Pesticides known to inhibit the function of the cholinesterase enzyme.

Inhibitors

Other Pesticides : Any pesticide that is not an antimicrobial or cholinesterase-inhibiting pesticide.

4. Type of Illness: Categorization of the type of symptoms experienced.

Eye : Health effects involving only the eyes. This excludes outward physical signs (miosis and lacrimation) related to effects on internal bodily systems. These signs are classified under 'Systemic'.

Skin : Health effects involving only the skin.

Systemic : Any health effects not limited to the skin and/or eye. Cases involving multiple illness symptom types including systemic symptoms are included in the systemic category.

Respiratory : Health effects involving any part of the respiratory tree.

Whom to Contact:

California Department of Pesticide Regulation

Worker Health and Safety Branch

Phone: (916) 445-4222.

Physical address: 1001 I St., Sacramento CA 95814-2828.

Mailing address: P.O. Box 4015, Sacramento, CA 95812-4015

Fax: (916) 445-4280

www.cdpr.ca.gov

About the Pesticide Illness Surveillance Program Data

Pesticide-related illnesses have been tracked within the state of California for nearly 50 years. The California Environmental Protection Agency, Department of Pesticide Regulation (DPR) maintains a surveillance program which records human health effects of pesticide exposure. The Pesticide Illness Surveillance Program (PISP) documents information on adverse effects from pesticide products, whether elicited by the active ingredients, inert ingredients, impurities, or breakdown products. This program maintains a database, which is utilized for evaluating the circumstances of pesticide exposures resulting in illness. This database is consulted regularly by staff who evaluate(s) the effectiveness of the DPR pesticide safety programs and recommend changes when appropriate.